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ABSTRACT

This article intends to shed light on the somewhat nebulous term "basis of articulation," which is used frequently in Eastern European phonetic and linguistic literature but highly neglected in contemporary American literature. In a historical approach, it is shown how the term originated and developed, how it is defined by various authors, and how it is applied today with special emphasis on American and British literature. (Author/VM)

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BASIS OF ARTICULATION

by

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BASIS OF ARTICULATION

This article intends to shed some light on the somewhat nebulous term "basis of articulation," which seems to be used frequently in the Eastern European phonetic and linguistic literature,¹ but highly neglected in contemporary American literature. In a historical approach, it will be shown how the term originated and developed, how it is defined by various authors and applied today, with special emphasis on American and British literature.

1. Meaning

Pronunciation and its various phonetic implications have always played an important role in the description of a living language, especially since the last third of the nineteenth century. The sound description of a language dealt mostly with an enumeration - and in some cases with a systemization - of sounds and phonetic phenomena and was usually summarized in a textbook under the chapter "Pronunciation" or "Phonology." In many descriptions of pronunciation, an individual sound was described in terms of its relation to similar or related sounds of the mother language and characterized on an auditory basis (e.g., "lighter," "longer," etc.), or on an articulatory basis (e.g., "further

¹In Kaiser's Manual, for instance, the term occurs only in Mala's article.

front," "more energetic," etc.). In such a description, which actually is nothing but a comparison, the early phoneticians found that certain characteristics did not only apply to individual sounds but also to whole sound groups or even to all the sounds of a given language.

Furthermore, one can easily make the observation that a native speaker of French pronounces English in a peculiar way, but still different from a native speaker of German or a native speaker of Spanish. In such cases, one speaks of "English with a French accent," "English with a German accent," or "English with a Spanish accent." With regard to these phenomena, a description of the sounds of a language was not satisfying if the description was nothing more than a listing of sounds (today often called "phoneme inventory") and the characterization of individual sounds in comparison to the mother language.

Edward Sapir indicates in his book Language that the phonetics of a language consists of more than just the sum of its individual sounds:

The phonetic habits of a given language are not exhaustively defined by stating that it makes use of such and such particular sounds out of the all but endless gamut... There remains the important question of the dynamics of these phonetic elements. Two languages may, theoretically, be built up of precisely the same series of consonants and vowels and yet produce utterly different acoustic effects.²

The acoustic effect Sapir refers to may not have been of significance to the early phoneticians for whom the auditory impression was much more important.

The auditory impression which a hearer has of a "sound of a language" or of a "foreign accent," however,

²Eduard Sapir, Language (New York, 1921), p. 53.

had to be defined on an articulatory basis. The way in which sounds are produced, the special positions from which the articulation of a sound is undertaken, and also the basic position (position of rest) of the speech organs, and finally the activity of the articulators were observed to be different in every language. It was, therefore, assumed that every language has a specific "Basis of Articulation."

What is meant by this term? As we shall see, the term was used rather loosely; in some cases, however, it was limited to mean "the basic position of speech organs." In two American linguistic dictionaries, the Dictionary of Linguistics, and Glossary of Linguistic Terminology, the term "basis of articulation" was defined respectively as "the neutral position of the organs of speech and their various parts which is peculiar or characteristic of the native speakers of a given language,"³ and as the "all-over neutral position of the speech organs and their various parts when not speaking which is characteristic of a speech community of the native speakers of a language."⁴

2. Origin

Taking these two definitions as a basis, we shall investigate where the term "basis of articulation" originated historically and what its original meaning was.

The linguistic science of the early nineteenth century was primarily historically oriented. Linguists such as Franz, Bopp, Rasmus Kristian, Rask and Jacob Grimm used as a "corpus" the written historical text which was satisfactory for their historical investigations. The claim that linguistics should deal with the spoken

³Mario Pei and Frank Gaynor, A Dictionary of Linguistics (New York, 1954).

⁴Mario Pei, Glossary of Linguistic Terminology, (Garden City, New York, 1966).

language was voiced for the first time in 1837 by Rudolf von Raumer in his book Aspiration und die Lautverschiebung.⁵ However, it was not until forty years later that the invention of Thomas Edison made it possible for us to reproduce a spoken text and thus prepare it for scientific research. The phonograph, (and later the tape recorder) has been the primary source for linguists since 1877.

In the nineteenth century the science of phonetics had reached its greatest development. Similar to the Renaissance which had witnessed a great development in speech research with its main representatives John Hart (d. 1574), John Willkins (1614-1672), and William Holder (1616-1698), the nineteenth century saw the establishment of modern phonetics as a science in which - as Swoboda⁶ expresses it - physiology and linguistics shake hands. It may be noted parenthetically that both periods, the Renaissance and the nineteenth century, saw a rise in the prestige and use of the national languages.

The rapid growth of the science of phonetics in the last third of the nineteenth century, which has to be ascribed primarily to the efforts of the neo-grammarians, has created a number of sub-divisions of this science, such as experimental phonetics, historical phonetics and - most important of all - descriptive phonetics. Descriptive phonetics emphasized the analysis of speech sounds, their nature and origin, their classification and representation. During this period, the Association Phonétique Internationale was founded to provide an internationally usable

⁵Rudolf von Raumer, Aspiration und die Lautverschiebung, (Leipzig, 1837).

⁶W. Swoboda, "Zur Geschichte der Phonetik" Phonetische Studien, v. 4, (1891), p. 1-36 and p. 147-182.

phonetic alphabet, and many phonetic periodicals - such as Phonetische Studien or Le maître Phonétique which were to provide the growing number of phoneticians with a means of sharing their studies of the spoken language in a period of growing internationalism of the phonetic science - commenced publication.

The increasing importance of the science of phonetics was further marked by the many attempts which were undertaken during this time to reform the orthography of the European languages (especially English), and to write them phonetically, as well as by the phonetic experiments which were conducted by Otto Jespersen in Denmark, August Western in Norway, Paul Passy in France, J. Spieser in Germany, and Alexander Ellis and Laura Soames in England.

In his Study of language, John Carroll remarked: Motor phonetics was well established in the nineteenth century by the time Sievers' Grundzüge der Lautphysiologie (1876) and Sweet's Handbook of Phonetics (1877) were published.⁷

Indeed, it was Sievers in Germany and Sweet in England who were mainly responsible for the advancement of phonetics and for a reform of linguistics, as well as the study of languages on a phonetic basis. In 1877 Sweet formulated his claim (which Viëtor later used as an epigraph in his Elemente) in this way:

...If our present wretched system of studying modern languages is ever to be reformed, it must be on the basis of a preliminary training in general phonetics, which would at the same time lay the foundation for a thorough practical study of the pronunciation and elocution of our own language...⁸

⁷ John B. Carroll, The Study of Language, (Cambridge, Massachusetts, 1953), p. 32.

⁸ Wilhelm Viëtor, Elemente der Phonetik des Deutschen, Englischen und Französischen, (Leipzig, 1884), p. vi.

It is remarkable that at a time when linguists turned more and more to the spoken language and when phonetic description became more important than ever before, the term "basis of articulation" appears for the first time. It appeared almost simultaneously in the German and English language literature.

The term originated, however, in Germany. Its author was Felix Franke. Otto Jespersen,⁹ Wilhelm Viëtor¹⁰ and Eduard Sievers¹¹ refer to him in their works.

Originally Eduard Sievers had suggested a different term, "Operationsbasis." Only later did he use "Artikulationsbasis" in accordance with Franke's terminology. Storm's suggestion "Mundlage"¹² was also replaced by the term which Franke had introduced. Today, only the term "Artikulationsbasis" is used in German, whereas in English, "Organic basis" (Sweet) and "articulatory setting" (Honikman) are in use besides "basis of articulation."

In Sievers's Grundzüge, which appeared in 1876,¹³ one chapter is already devoted to the "basis of articulation." It presents the first thorough treatment of this phenomena in a standard work of phonetics. With this chapter, Sievers pointed out - as did Viëtor¹⁴ - the importance of the knowledge of a common principle which characterizes the position of individual sound systems. In his Grundzüge he describes the basis of articulation as follows:

⁹In a footnote to Franke's article "Die Umgangssprache der Niederlausitz in ihren Lauten," Phonetische Studien, v. 2 (1889), p.29.

¹⁰In his Elemente, p. 263: "...Artikulationsbasis (ich ziehe diesen wohl von Franke zuerst gebrauchten Ausdruck vor)..."

¹¹Eduard Sievers, Grundzüge der Phonetik, (Leipzig, 1901), p. 114.

¹²Storm gives hints to the different bases of articulation and notes in his Englische Philologie (Heilbronn, 1881) "dass überhaupt jede Sprache eine eigenthümliche Mundlage hat." (p. 32)

¹³Original title: Grundzüge der Lautphysiologie, (Leipzig, 1876), later changed to: Grundzüge der Phonetik, (Leipzig, 1881, 1885, 1893, 1901).

¹⁴Viëtor, Elemente, p. 263.

Man unterlasse also nie zu untersuchen, ob sich die Abweichungen der Einzelvocale zweier oder mehrerer Systeme nicht auf ein gemeinsames, die Stellung der Systeme ohne Weiteres charakterisirendes Princip zurückführen lassen.

Solche Principien sind beispielsweise die stärkere oder geringere Spannung der articulierenden Weichteile und deren Folgescheinungen, die stärkere oder geringere Beteiligung der Lippen, verschiedene Stufen der Nasalirung u. dgl. Ferner gehört hierher namentlich auch eine durchgehends bei allen Vocalen des Systems abweichende Lagerung der Zunge, die von Differenzen in der Ruhelage der Organe herrührt, und die man jetzt meist mit F. Franke als die spezifische *A r t i c u l a t i o n s - b a s i s* der betreffenden Idiome zu bezeichnen pflegt. Versuche ich als Mitteldeutscher z. B. eine prägnant norddeutsche Mundart wie etwa die holsteinische zu sprechen, so muss ein für allemal die Zunge etwas zurückgezogen und verbreitert werden; hat man diese Basis einmal gefunden und versteht man sie beim Wechsel verschiedener Laute festzuhalten, so folgen die charakteristischen Lautnuancen der Mundart alle von selbst. Füge ich zu dieser Articulationsweise noch die Neigung der Zunge zu supradentaler Articulation bei passiver Lippenlage, so gewinne ich die Basis zur Aussprache des Englischen. Manche Sprachen zeichnen sich durch tiefen Kehlkopfstand und im Zusammenhang damit durch die Neigung aus, die Gesamtmasse der Zunge nach hinten zu ziehen, also alle Laute etwas zu velarisiren, während andere 'vorn im Munde' gesprochen werden, u. dgl. Aber auch geringere Unterschiede haben noch sehr merklichen Einfluss auf den Charakter der Sprache. In der mir geläufigen niederhessischen Mundart articulirt die Zunge schlaff und mit möglichst geringer Anspannung aller ihrer Theile, auch die Kehlkopfarticulation ist wenig energisch. Um dagegen den richtigen Klangcharakter mancher sächsischer Mundarten zu treffen, muss die ganze Zunge angestraft werden und der Kehlkopf bei stärkerem Expirationsdruck energischer articuliren. Daher machen auch diese Mundarten einen harten, etwas schreienden Eindruck gegenüber dem dumpfen, fast verdrossen theilnahmslos annehmenden Charakter der hessischen Mundart.¹⁵

¹⁵ Sievers *Grundzüge*, (Leipzig, 1901), p. 114-115.

Siever's definition of the term "basis of articulation" obviously does not include the activity of the speech organs in the speech process. Franke's original definition is ambiguous, that is, it is not clear whether it includes the activity of the speech organs in addition to the position of rest. In his essay "Die Umgangssprache der Niederlausitz in ihren Lauten", Franke writes about this dialect:

Als allgemeine charakteristika liessen sich anführen: die indifferenzlage ist der französischen ähnlich, unterscheidet sich aber von ihr durch mindere energie, wie überhaupt die artikulationen durchgängig etwas schlaff sind.¹⁶

Franke's essay appeared posthumously in 1889 in Phonetische Studien. Otto Jespersen, who published the article, remarked in a footnote to Franke's term "Indifferenzlage":

Eigentümlicherweise gebraucht F. hier noch nicht den ausdruck 'artikulationsbasis', der doch von F. selber herzurühren scheint und der jetzt in der lautwissenschaft allgemein üblich geworden ist. In dem spätesten entwurf aber steht 'artikulationsbasis' als überschrift des entsprechenden (nicht geschriebenen) abschnitts - O.J.¹⁷

By this time the term coined by Franke had already come into general use. Due to his early death, it was not Franke himself who was primarily responsible for it, but Wilhelm Viëtor, especially as far as the transition of this term into the English language literature is concerned. The term "Artikulationsbasis" appears first in his Elemente, published in 1884. In the English language literature, Sweet was the first to define the term one year later.

Phonetische Studien, 2 (1889), p. 2.

1884, p. 29.

The influence both phoneticians had beyond their own language community is shown by the rapid translation of Viëtor's books¹⁸ into English shortly after their publication in German and by the publication of Sweet's books¹⁹ in German and English. Furthermore, both phoneticians had strong ties to each other's countries: Viëtor was a lecturer in Liverpool and Sweet had an honorary doctor's degree from Heidelberg. It is, however, interesting to observe that the German term "Artikulationsbasis" was translated with the English term "organic basis." This is interesting insofar as it might suggest that Sweet had observed this phenomenon independently from the German phoneticians and also named it independently from them. In the later English language literature, the term "organic basis," however, does not occur but is replaced by other terms, especially "basis of articulation."

Despite the fact that the basis of articulation began to be described in the 70's and 80's of the last century, this does not mean that the phenomena which were named by Sievers ("Operationsbasis"), Storm ("Mundlage"), Franke ("Artikulationsbasis"), and Sweet ("organic basis") had not been noticed earlier. Many linguists, including George P. Marsh, referred to it without a specific designation. Marsh gave a lecture, which later appeared in printed form,²⁰ at Columbia University during the winter semester 1858-1859 about the English language. In his chapter on pronunciation, he refers to the differences of various languages. He supposes that the "employment of different sets of muscles by different people, for the production of the same or similar sounds"²¹ is mainly responsible for the

¹⁸ The condensed version of his Elemente, the book Kleine Phonetik, (Leipzig, 1897), appeared 1899 in English as Elements of Phonetics (translated by Walter Ripman). His German Pronunciation is essentially identical with Die Aussprache des Schriftdeutschen, (Leipzig, 1898), original title: Die Aussprache des Worterverzeichnisses, (Heilbronn, 1885).

¹⁹ Sweet's Primer of Spoken English appeared first in German as Elementarbuch des gesprochenen Englisch, (Oxford, 1885).

²⁰ George P. Marsh, Lectures on the English Language, (New York, 1877).

²¹ Ibid., p. 283.

differences of the pronunciation of various languages. To illustrate his point, Marsh cites the following anecdote: Alexander von Humboldt noticed that after prolonged use of the Spanish language, the speech organs became easily tired when he again spoke German. Marsh's comment: "I think this, however, was from the necessity of employing in pronunciation muscles long disused and that the sense of weariness was defined in those muscles."²²

The first American phonetician to use the term "basis of articulation" was George Hempl of the University of Michigan. One might assume that the concept "basis of articulation" had been introduced in America through the works of Sweet. This, however, is not the case. Hempl does not use Sweet's term "organic basis" but the literal translation of the German term "Artikulationsbasis." This is not surprising since Hempl had studied under Sievers in Germany. Due to the latter's influence, Hempl probably was stimulated to write the chapter about the basis of articulation in his book German Orthography and Phonology.²³

By the end of the nineteenth century, the first discussions about the "basis of articulation" had come to an end. Interest decreased constantly and in the later works of phoneticians, the term does not appear anymore or is criticized, as, for example, by the Norwegian Olaf Broch who, in his Slavische Phonetik, characterizes the basis of articulation as a nebulous conception:

Auf den etwas nebelhaften Begriff
'Artikulationsbasis' möchte ich überhaupt
nicht eingehen, wenngleich sich auch
zweifelloos gewisse lautliche Eigentümlichkeiten
einzelner Sprachen zu einer allgemeinen Charakter-
istik zusammenstellen lassen...²⁴

²²Ibid., p. 375.

²³George Hempl, German Orthography and Phonology,
(Boston, Chicago, London, 1897).

²⁴Olaf Broch, Slavische Phonetik, (Heidelberg, 1911), p. 109.

On the other hand, Broch reported in detail on the position of the body of the tongue for the articulation of vowels in some White Russian dialects.

The declining interest in the basis of articulation is marked by a lack of the term in all major phonetic publications. Leading dictionaries of the English language also do not list this term; however, two German dictionaries define the "basis of articulation" as "Lage und Einstellung der Sprechorgane bei der Artikulation"²⁵ and as "die Ruhelage der Sprechorgane, die für jede Sprache eigentümlich ist."²⁶ The term also occurs occasionally in German phonetic literature: in Vademekum der Phonetik²⁷ by the Swiss Eugen Dieth, and in Einführung in die Phonetik und Phonologie²⁸ by the Austrian Wilhelm Brandenstein. While Dieth makes a sharp distinction between "Artikulationsbasis" and "Grundhaltung der Organe im Sprechprozess," Brandenstein uses the term very vaguely. For Brandenstein, the basis of articulation is also the reason for phonological substitution:

Die Substitution hängt damit zusammen..., daß das Lautsystem einer Sprache ein geschlossenes Ganzes ist, das auf einer gewissen Grundhaltung der Sprechmuskulatur und auf einer gewissen aufeinander abgestimmten Bereitschaft zu den Artikulationen beruht. Umlernen ist immer schwieriger als Neulernen. Anders ist die Lage beim Kleinkind, das sprachlich ein unbeschriebenes Blatt ist, und daher die gehörten Laute möglichst getreu nachahmen will. Das Kind lernt erst die Artikulationsbasis.²⁹

²⁵Schweizer Lexicon, (Zürich, 1945).

²⁶Der Grosse Brockhaus, (Weisbaden, 1952).

²⁷Eugen Dieth, Vademekum der Phonetik, (Bern, 1950).

²⁸Wilhelm Brandenstein, Einführung in die Phonetik und Phonologie, (Wien, 1950).

²⁹Ibid., p. 29.

Dieth's distinction between "Artikulationsbasis" and "Grundhaltung der Organe im Aprechprozess" is best illustrated by the examples taken from the Beiträge zu Schweizerischen Grammatik: (a) for the basis of articulation of the dialect of Kurzenberg: "...ich schiebe den Unterkiefer ein wenig vor..." (b) for the basic positioning of the speech organs during the articulation of the dialect of Obertoggen-burgen: "...Die Zungenartikulation ist weniger kräftig..."³⁰

3. Development

The originators of the term defined it in very much the same way as defined in Dieth's Vademekum. Wilhelm Viëtor described it in his book Kleine Phonetik under the heading "Die Artikulationsbasis":

Die Bestimmung der Artikulationsbasen wird vorläufig wesentlich auf Vergleichung beruhen müssen, wobei als Ausgangspunkt die eigne, deutsche, zu dienen hat. Eine allgemein deutsche Artikulationsbasis ist freilich nur eine fast bedenkliche Abstraktion, da die Mundarten auch in dieser Hinsicht bedeutend von einander abweichen; und ähnliches gilt vom Englischen und Französischen. Immerhin ist es möglich, durch einige charakteristische Züge den Unterschied zwischen der englischen oder französischen und der deutschen Artikulationsbasis zu kennzeichnen. Die englische Artikulationsweise unterscheidet sich von der deutschen im allgemeinen durch folgende Eigentümlichkeiten: Die Zunge wird gesenkt, zurückgezogen und verbreitert (abgeflacht), mit Neigung zur konkaven Vertiefung der Vorderzunge. Der Unterkiefer schiebt sich etwas nach vorn. Die Lippen beteiligen sich nur wenig an der Lautbildung; sie werden zwar mässig gerundet, aber weder vorgestülpt noch nennenswert gespreizt (es gilt geradezu als Regel, die Lippen möglichst wenig zu bewegen); der Mund ist nur mässig geöffnet. Der Kehlkopf steht tief (?), und die Stimme hat einen dunkeln, beinahe dumpfen Klang und wenig Modulation. Die Ausatmung verläuft meist entschieden

³⁰ Beiträge zur Schweizerischen Grammatik, I 9 and IX 8.

decrecendo. Die Folge dieser für die deutsche Auffassung tragen und unbestimmten Artikulation ist der Mangel an zweifellos "engen" und palatalgerundeten Vokalen gegenüber der Entwicklung "gemischter" Vokale, an "engen" Konsonanten, sowie an wirklichen "dentalen" d t - und z s - Lauten, während d t den g k näher treten und in das palatale Gebiet zurückweicht, der dumpfe Klang besonders des l etc. Die französische Artikulationsweise entfernt sich von der deutschen in entgegengesetzter Richtung. Die Zunge neigt zu vorgeschobener, enger und bestimmter Artikulation. Die Lippenthätigkeit ist ausgeprägt und äussert sich teils im Runden und Vorstülpen oder im Spreizen der Lippen, teils im energischen Öffnen des Mundes. Bei hohem Kehlkopfstand (?) klingt die Stimme klar und hell; die Modulation lässt die Intervalle verhältnismässig deutlich hervortreten. Die Expiration ist gleichmässiger als im Deutschen und Englischen und neigt zum crescendo. Daher das Fehlen weiter Vokale, insbesondere weiter u-, i-, und y - Laute und ebensolcher Konsonanten; dentale d t - und z s - Laute (mit scharfer Unterscheidung der d t - von den g k - Lauten); palatales j statt des gutturalen ɣ etc. Eine Eigentümlichkeit ist die häufige Nasalirung der Vokale durch Nicht-Herstellen des Gaumensegelverschlusses.³¹

This definition and description is very similar to Sievers'. Sweet also described the basis of articulation in much the same way in his Elementarbuch des gesprochenen Englisch which appeared one year after Viëtor's Elemente:

Der dumpfe klangcharakter des Englischen beruht auf den eigenthümlichkeiten seiner articulationsbasis, die sich von der deutschen hauptsächlich durch lage und gestalt der zunge und der lippen unterscheidet. Die verbreiterte zunge zieht sich von dem zähnen (womit sie fast nie in berührung kommt) etwas zurück, und ihr vorderer theil wird concav gemacht, was besonders deutlich beim

³¹ Wilhelm Viëtor, Kleine Phonetik, (Leipzig, 1910), p. 76-77.

1 zu merken ist. Die labialen (gerundeten) laute werden im Englischen ebenso bestimmt und energisch gebildet wie in anderen sprachen, aber ohne die geringste vorstülpung der lippen. Bei den ungerundeten lauten dagegen verhalten sich die lippen ganz passiv; es unterbleibt namentlich jene spaltförmige ausdehnung der lippenöffnung, wodurch in anderen sprachen die palatalen vocale eine hellere klangfarbe erhalten.³²

Henry Sweet devotes one chapter to the description of the basis of articulation in both his books published in 1890, A Primer of Spoken English and A Primer of Phonetics. In these chapters, the term "organic basis" appears for the first time. In his Primer of Spoken English, Sweet describes the basis of articulation in this way:

The general character of English speech depends on the following peculiarities of its organic basis:- The tongue is broadened and flattened, and drawn back from the teeth (which it scarcely ever touches), and the fore part of it is hollowed out, which gives a dull sound, especially noticeable in 1. Rounded (labial) sounds, such as w, uw in 'who', are formed without any pouting of the lips. In unrounded vowels, such as aa, i, the lips have a passive neutral position. In the formation of front vowels such as i, e, there is no 'chinking' or spreading out of the corners of the mouth, by which in other languages their sound is made clearer.³³

In comparison with the descriptions given in 1885 and 1890, one will notice that Sweet's definition is formulated more carefully. In his later works - e.g., in the New English Grammar³⁴ - the term does not occur anymore. In a chapter on phonology, no hints about the basis of articulation are found. In his Handbook of Phonetics³⁵, Sweet speaks about the dull sound

³² Elementarbuch, (Oxford, 1885), p. xx.

³³ Henry Sweet, A Primer of Spoken English, (Oxford, 1890), p. 4.

³⁴ Henry Sweet, A New English Grammar, (Oxford, 1900).

³⁵ Henry Sweet, A Handbook of Phonetics, (Oxford, 1877).

character of English, but neither the term nor a description is found. The same applies to all his other works, except his pamphlet on The Practical Studies of Languages which will be mentioned later.

In his Primer of Phonetics which appeared in the same year as A Primer of Spoken English, Sweet includes in his chapter on the "organic basis" a description of the German and French bases of articulation:

Every language has certain general tendencies which control its organic movements and positions, constituting its organic basis or basis of articulation. A knowledge of the organic basis is a great help in acquiring the pronunciation of a language.

In English we flatten and lower the tongue, hollow the front of it, and draw it back from the teeth, keeping the lips as much as possible in a neutral position. The flattening of the tongue widens our vowels, its lowering makes the second elements of our diphthongs indistinct, front-hollowing gives a dull resonance which is particularly noticeable in our i, its retraction is unfavourable to the formation of teeth-sounds, and favours the development of mixed vowels, while the neutrality of the lips eliminates front-round vowels. Our neutral tongue-position is the low-mixed or mid-mixed one of the vowels in further draw.

In French everything is reversed. The tongue is arched and raised and advanced as much as possible, and the lips articulate with energy. French therefore favours narrowness both in vowels and consonants, its point-consonants tend to dentality, and, compared with the English ones, have a front-modified character, which is most noticeable in the i, while the rounded vowels are very distinct.

The German basis is a compromise between the English and French, standard North German approaching more to the French.

No language, however, carries out the tendencies of its basis with perfect consistency.

Thus in English, we have the point-teeth u; and mixed vowels occur in French and German, etc.³⁶

³⁶ Henry Sweet, A Primer of Phonetics, (Oxford, 1890).

In this description, five things are noteworthy:

- (1) Besides the term "organic basis," Sweet also introduces the new term "basis of articulation" as a synonym;
- (2) In the description of the basis of articulation of English, French and German, he begins with an observation of the activity of the speech organs - similarly to Viëtor and Sievers - and he follows the almost stereotype pattern whereby he compares the three languages studied mostly at this time. German falls in a medium position between English, spoken with less energy, and French, articulated vigorously;
- (3) Sweet admits that the basis of articulation of a language is not always consistently maintained by its speakers;
- (4) In his article, Sweet implies what Viëtor had already said clearly, that is, that the determination of the basis of articulation will in principle have to be based on a comparison between two or more languages with each other, since no measures of exact description have been found, as later phoneticians also admitted;
- (5) Sweet goes beyond the actual research in the basis of articulation and already gives indications for its application in language learning. According to him the knowledge of the basis of articulation will be of help for the language student. The pedagogical aspect is taken up also by Jespersen and will be mentioned later.

Sweet was the first Englishman to describe the basis of articulation, George Hempl the first American. In his book German Orthography and Phonology (1897), Hempl compares English and German in the chapter on the basis of articulation and begins with the auditory impression of the two languages:

To Germans, English sounds dull and muffled, and they are wont to say that we do not open our mouths wide enough in speaking. We do, in fact, manage our lips and tongue differently. In sounding the rounded vowels, many of us do not protrude the lips as the Germans do, and in sounding unrounded vowels most of us do not open the lips in a narrow slit almost to the very corners of the mouth as is done by many Germans: that is, in both cases we leave the lips comparatively inactive. This makes all our vowels less clear and less distinct from one another than the corresponding German vowels are; which is particularly noticeable in the case of the front vowels. (a) In English the tongue, when in action, is not back in sounding the back vowels nor pressed as far forward in sounding the front vowels. When at rest, it is left flat and allowed to lie low, being more or less hollowed in front, and seldom extended to the teeth. (b) This sluggish condition of the tongue favors wide, low, and mixed vowels: German has no such low vowels as those in hat, law, &c. are, and but one mixed vowel and that unstressed, while English has also these in cut, hurt, and, in the pronunciation of many, hot and part. (c) In making German shut consonants, not only are the parts that meet more tense, but not as much surface touches; this makes the German sounds not so muffled as the English are apt to be. (d) The fact that the tongue touches the teeth in sounding German t, d, l, n &c., also tends to give these a clearer, more i-like sound.³⁷

³⁷George Hempl, German Orthography and Phonology, (Boston, Chicago, London, 1897), p. 113-114.

Hemphill also interprets the term more broadly and implies more than just the neutral position of the speech organs. It is quite remarkable that he constantly refers to the auditory impression: e.g., "This makes the German sounds not so muffled as the English are apt to be." This auditory impression also plays an important role in Willem L. Graff's Language and Languages³⁸. In this book, Graff introduces the term "auditory basis" besides "articulatory basis." For Graff, who deals with sound shifts in this chapter, the auditory basis is mainly responsible for the substitution of foreign sounds in loan words. He presents a short and precise definition of both the auditory basis and the articulatory basis:

There are certain features, a change of which affects more or less the entire phonetic system of a language. They are the bases of articulation and audition and the accent. The articulatory basis is generally described by phonetists as the peculiar position of the various parts of the speech organ when at rest. This neutral position is different in different languages and is the result of both hereditary and acquired habits. An Englishman who is to speak French must first succeed in effecting a general transposition of his neutral basis of articulation, by giving his tongue a more forward position, by keeping his lips in readiness for frequent rounding and his tongue for tenser articulation, etc. The auditory basis is the fixed grouping of sounds in collective acoustic units (= phonemes) comprising a number of meaningless variations; or, to put it differently, it is the conventional appraisal of the bounds within which the acoustic identity of certain variations is felt to be preserved in a given language. It is the basis from which the speakers of a language identify various acoustic shades as unimportant variants or as significant and essential phonetic differences. In English,

³⁸ Willem L. Graff, Language and Languages - An Introduction to Linguistics, (New York, London, 1932).

the acoustic identification of a sound such as voiceless [p] is dependent upon its accurate differentiation from voiced [b], whereas in Middle and Upper German dialects [p] and [b], are acoustically identified as the same collective sound unit. These bases of articulation and audition are at the same time the effect and also the preserving cause of the particular sound system of a language, and it is easy to see how a change in one is likely to produce a corresponding change in the other and to affect more or less the whole system of sound grouping. Both are by no means immutable. They are especially subject to shifts in the event of language mixture. When an Englishman speaks French, he is very prone to pronounce it with his English basis of articulation and to identify the French sounds in keeping with his English basis of acoustic discrimination. The French word Jean is pronounced by Germans [ʃɔ], where French [ʒ] and [ɛ], which do not occur in the German sound system, are replaced by their closest German approximations [ʃ] and [ɔ].³⁹

According to Graff, the differences of the auditory bases in different languages are the cause of sound shifts and phonological substitution.

The auditory basis thus termed by Graff had already been mentioned in 1913 by R.E.J. Davis who, however, did not employ Graff's term. The fact that a German is very often unable to hear the difference between man and men, and that the English words, had, head, and hat are reduced to, and combined in "het" results from the auditory basis to which the German ear is accustomed.⁴⁰

In quite an impressionistic way, J. van Ginneken also refers to the auditory basis without using the term. In a paper which he presented at the Second International Congress of Phonetic Science in London in 1935, he speaks about the velar pronunciation of Dutch and the tendency of the Dutch to pronounce certain sounds in the

³⁹ Ibid., p. 224-226.

⁴⁰ P.E.J. Davis, "Phonetics and the Foreign Accent," Queen's Quarterly, v. 20 (1913), p. 250-261.

throat rather than in the back part of the mouth, and comments:

Les Néerlandais qui prononcent un l velaire... prononcent aussi un r velaire; et leur spirantes velaires γ et x (ch) proviennent de la gorge, au lieu de l'arriere partie de la bouche... Et c'est pour cela que les Allemands disent que nous Hollandais, nous sommes des 'Rachensprecher' qui parlent de la gorge.⁴¹

This impressionistic characterization of the Dutch pronunciation can, however, be made also of other languages. Swedish dialects, for instance, give a similar impression, as Dieth points out in his Vademekum.⁴²

While the discussion about the auditory basis is restricted to the 30's, the discussion about the basis of articulation has increased somewhat after the Second World War. In his General Phonetics, Heffner includes a chapter on the basis of articulation. This chapter offers, besides explanations and definitions of earlier authors, the realization that an exact termination of the basis of articulation cannot be measured:

It is clear that there are certain general peculiarities of utterance which characterize the speech movements of whole groups of speakers. One of the most important of these is sometimes spoken of as the general basis of articulation. The matter deserves much more careful treatment than it has yet received. It has, however, been observed that in some dialects or languages, the position of the tongue from which its articulatory movements start and to which it tends to return is relatively low and retracted, with the tongue surface quite broad. All of the movements of the tongue are made to harmonize with this habitual attitude, or "Indifferenzlage" of the organ, and the vowels particularly are then marked by dullness rather than by brightness of timbre. Some groups of speakers join with this generally low level tongue position, a tendency

⁴¹ J. van Ginneken, "Il y a plusieurs manières de prononcer correctement les phonèmes d'une langue moderne," Proceedings of the Second International Congress of Phonetic Sciences, (London, 1935), (Cambridge, England, 1936), p. 65-69.

⁴² Op. cit., p. 136.

to allow the lips to remain largely passive. In other regions, the whole level of the tongue in its speech movements is higher and more in the front of the mouth. The tongue is more tense and the movements are quicker. Often in such cases the lips are notably active. French is a language which is usually spoken from a high and tense forward basis of articulation. German is intermediate between French and English in this respect, for English is spoken from a comparatively low and relaxed basis of articulation. On the whole, American English is even less energetically enunciated than British English. These are broad generalizations to which there are many individual exceptions. They are, moreover, supported only by the observations of men like Storm, Sievers, and Jespersen. No method of measurement has been devised which would permit the mathematical description of a basis of articulation.⁴³

Bithell's German Pronunciation and Phonology,⁴⁴ which appeared in the same year as Heffner's General Phonetics, uses the term in a less accurate way. On one hand, Bithell employs the term quite untraditionally as a synonym of "points of articulation," on the other, he gives a description of the German basis of articulation without using the term:

Germans protrude their lips more than Englishmen and this results in a variation of phonemes. (French requires even more lip action.)⁴⁵

In addition, he introduces the terms Sprechbereitschaftsbasis, which is defined as "the position of readiness to speak before the organs required for the sound become active," and Lagegefühl, which every native speaker possesses for all the sounds of his language, and which is acquired in early childhood.

⁴³Roe-Merrill S. Heffner, General Phonetics, (Madison, 1952), p. 98-99.

⁴⁴J. Bithell, German Pronunciation and Phonology, (London, 1953).

⁴⁵Ibid., 58.

Similar to Heffner, only twelve years later, Beatrice Honikman describes the basis of articulation in her essay "Articulatory Setting". On the one hand, she regrets that too little emphasis has been placed on exact description of the basis of articulation of a language. On the other, she admits that no measures or standardized parameters have been found. Her definition of the basis of articulation - she is probably the only one to call it "articulatory setting" - is basically congruous with the definitions of early phoneticians, that is, the term covers the disposition of the various parts of the speech mechanism as well as their maneuvering. She points out that articulatory settings have to be understood not as the specific articulations of individual sounds, but as the nexus between them. The common rather than the distinctive features should be described.

Honikman, like phoneticians before her, already indicates the field of application in language learning. Many students learn the basis of articulation by natural imitation. To others, a description of the basis of articulation could be of help. Optical illustrations such as the lip movement are pedagogically adequate means of demonstration.

Honikman's essay, which is the most recent one in this area, mirrors the problems connected with a description of the basis of articulation of various languages. Since measures are lacking, scientific research has not advanced much beyond its position in the days of the early phoneticians. What Honikman said, Viëtor and Sweet had said in similar words eighty or ninety years before. Therefore, it is remarkable that a relatively

Beatrice Honikman, "Articulatory Settings," In Honour of Daniel Jones, (London, 1964), p. 73-84.

large number of phoneticians have dealt with the phenomenon of the basis of articulation.

One of the more recent citings of this term was made by Chomsky and Halle in their Sound Pattern of English:

As already noted, phonetic transcriptions consistently disregard many overt physical properties of speech. Among these are phonetic effects that are not locatable in particular segments but rather extend over entire utterances, such as the voice pitch and quality of the speaker and also such socially determined aspects of speech as the normal rate of utterance and what has been called by some writers the "articulation base":⁴⁷

In the phonological component of the generative grammar - as layed out by Chomsky and Halle - the transformational cycle, which determines the phonetic shape, could also determine criteria which has been generally designated "basis of articulation," as defined by Marouzeau.⁴⁸

4. Application

One might have expected that the term would have been largely used in works dealing with second language acquisition. Only brief remarks were made in this area even though Viëtor, Sweet, Hempl and Jespersen pointed already to its application in language learning. In what way is the "basis of articulation" of significance to the practical field, for instance, in language instruction and in textbooks? What help can a student receive from a description of the basis of articulation of a foreign language? This question had already been touched upon by Sievers in 1876:

⁴⁷ Noam Chomsky and Morris Halle, The Sound Pattern of English, (New York, 1968), p. 295.

⁴⁸ Chomsky and Halle adhere to Marouzeau Lexique de la terminologie linguistique, (Paris: Paul Gauthier, 1943)" who defines the basis of articulation on page 38 as a system of characteristic articulatory movements of a given language that confer upon it its general phonetic aspect: in French the mobility of the lips and forward position of the tongue.

Derartige Vergleichen sind höchst lehrreich; wer irgendwie in der Lage ist, mehrere Mundarten sich aneignen zu können versäume ja nicht dies zu thun und die Abweichungen derselben systematisch zu studiren. Dabei leistet die oben erwähnte Articulationsbasis die besten Dienste.⁴⁹

While Sievers emphasizes the learning of various dialects, other authors emphasize the study of a foreign language. In one of the first articles which deals with the basis of articulation and its application in language teaching, Albert Harnisch speaks about the difficulties a language teacher faces in pointing out the sound character of a foreign language:

Wenn in dieser weise von vorneherein nachdrücklich auf genaue artikulation gehalten wird, so finden die schüler sehr bald von selbst die von der deutschen verschiedene, vorgeschobene französische artikulationsbasis (die wichtigste vorbedingung für eine ungezwungene französische aussprache) namentlich wenn man denselben schüler dadurch, dass man ihn bald deutsche, bald französische laute sprechen lässt, nicht selbst zwingt, die artikulationsbasis jeden augenblick zu verlegen.⁵⁰

Sweet also speaks about the application of a description of the basis of articulation in language teaching in his Practical Studies of Languages:

Each language has its own 'organic basis', and the organic bases of English and French are as distinct as they can well be. Hence the importance of a clear conception of the character of each basis and their relations to one another.⁵¹

After Sweet, Otto Jespersen indicates a practical use without, however, using the term. In his book, How to Teach a Foreign Language,⁵² published in 1904, he gives an enumeration of possible mistakes which might occur due to the differences in the basis of

⁴⁹ Eduard Sievers, Grundzüge der Phonetik, (Leipzig, 1881), p. 115.

⁵⁰ Albert Harnisch, "Die Verwertung der Phonetik beim Unterricht," Phonetische Studien, v. 4 (1891), p. 346.

⁵¹ Henry Sweet, The Practical Studies of Languages, (New York, 1899), p. 8.

⁵² Otto Jespersen, How to Teach a Foreign Language, (London, 1904).

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These hints are meant for the teacher. In the same way as Harnisch, Viëtor voices a warning to the teacher to use only the foreign language in class:

Plötzlicher Wechsel der Artikulationsbasis ist unbequem, wie sich z. B. beim Zitieren englischer Worte in deutscher Rede oder umgekehrt zeigt. Abwechselndes Lesen und Übersetzen fremdsprachlicher Sätze im Unterricht ist daher physiologisch (wie "psychologisch") unnatürlich. Jedenfalls wird die Erlernung der fremden Aussprache dadurch erschwert.⁵³

Even today, we find many hints and indications of such kinds in teacher's manuals and textbooks for foreign language teaching. Some examples from American textbooks may serve as illustrations:

German is pronounced more vigorously and energetically than English. Both consonants and vowels are uttered more forcibly. In the use of lip and tongue and in the expenditure of breath, English is a lazy language in comparison with German.⁵⁴

German is articulated more forcibly and distinctly than English.⁵⁵

German is pronounced more energetically, more distinctly than English.⁵⁶

German pronunciation is crisper and more energetic than English pronunciation. This effect results from more active use of both lips and tongue in German speech.⁵⁷

Native speakers of German, in spite of their many dialects and personal idiosyncrasies, have in common certain sound features that ... mark it off from other languages.⁵⁸

⁵³Viëtor Elemente, p. 263.

⁵⁴James A. Chiles, First Book in German, (Boston, 1935), p. 7.

⁵⁵Paul Holroyd Curtis, Basic German, (New York, 1938) p. X.

⁵⁶Uhlend Pohlau, Fundamental German, (New York, London, 1947), p. xii.

⁵⁷Erika W. Davis, James H. Hawkes, Ernst Loewenberg, William McClain, Deutsch - A Split Level Approach, (New York, 1957), p. XVIII.

⁵⁸Conrad P. Homberger, John F. Ebelke, Foundation Course in German, (Boston, 1958), p. 3.

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About vowels:

As you practice the following sampling of German vowels, keep the tongue higher than for the comparable English vowel, do not allow the tongue to slip out of its basic position: avoid any glide!⁵⁹

About consonants:

In most cases, the German consonants have about the same sounds as their English counterparts, except that they are enunciated more sharply.⁶⁰

German is pronounced with more energy, more precision and greater distinctness than English.⁶¹

... a few general observations are made here:
1. German must be spoken vigorously. It takes more breath, more energy to speak German than to speak English; the lips, the tongue, and the jaw must be more energetically employed ...
2. Vowel sounds are always pure; no matter how much they may be prolonged, there is no off-glide from one sound to another ...
3. German vowels are clearly pronounced, even in unstressed syllables; they are not reduced to a muted sound as in English.⁶²

Only one textbook uses the term "basis of articulation";⁶³ however, it does not deviate from the descriptions already quoted:

... These differences are chiefly due to the fact that the articulation of German is more vigorous than that of English.⁶⁴

Under the title "Phonology," an interesting remark about the auditory basis which resembles Graff's comment is found in one textbook:

⁶⁰Ibid., p. 7.

⁶¹Otto P. Schinnerer, Beginning German, (New York, 1967), p. 2.

⁶²John J. Kurtz, Heinz Pollétzor, A Comprehensive Course For College Students, (New York, 1966), p. 5.

⁶³George A.C. Scherer, Hans-Heinrich Wängeler, Contemporary German, (New York, 1966), p. VI - Wängeler also uses the term "basis of articulation" in his Outline of German Phonetics (to be published by emc corporation, St. Paul, Minnesota).

⁶⁴Ibid, p. 3.

⁵⁹Ibid., p. 5.

The big problem in acquiring an excellent pronunciation of a new language is to be able to hear the new sounds accurately before imitating them. The human ear is not a microphone. Therefore, all adults have a strong tendency to hear new sounds subjectively; they subconsciously compare them with sounds of their mother tongue and they perceive them as the nearest equivalents in the mother tongue.⁶⁵

Two examples from French books:

Proper French pronunciation is achieved only by more vigorous articulation and much greater use of the lip muscles than for American English.⁶⁶

French speakers have exactly the same organs of speech as anyone else; however, they use their tongue, lips, and vocal cords to produce noises quite different from English noises, and they organize their noises into a system radically different from that of English speakers.⁶⁷

And, finally, one example for Spanish:

Spanish pronunciation is more uniform than the English. The vowel sounds are clipped short and there is none of the slurring so commonly heard in English ... Spanish consonants are usually not so strongly pronounced as English consonants. Most of them are pronounced farther forward in the mouth with the tongue close to the upper teeth and gums...⁶⁸

5. Summary

Generally, the following may be said:

(1) The definition of what is termed "basis of articulation" (or "articulatory setting," "organic basis," or in German "Artikulationsbasis," "Operationsbasis," "Mundlage") has sometimes been arbitrary and was not used in the same way by all phoneticians. Essentially, the term covers three fields:

⁶⁵Ibid., p.3.

⁶⁶Rodney K. Ketcham, Jean Collignon, Patterns of French, (New York, 1961), p. XII footnote.

⁶⁷Dan Desberg, Lucette Rollette Kenan, Modern French, (New York, 1964), p. XVII.

⁶⁸Laurel Herbert Turk, Foundation Course in Spanish, (Boston, 1957), p. 4.

(a) the position of rest (Indifferenzlage) or the neutral position of the vocal organs, as defined in linguistic dictionaries; (b) the activity of the speech organs during the process of articulation as used by many, especially the earlier phoneticians; (c) the phonological substitution in loan words. This is only used in rare cases.

(2) The view that analogous to the basis of articulation there must be an auditory basis was only voiced occasionally.

(3) A real scholarly discussion has never taken place. Phoneticians who used the term in their works generally never refer back to earlier publications. Apart from few rare exceptions, an argument has never taken place in phonetic periodicals or elsewhere. One of the few who refers to the observations of another phonetician is Sweet who adds to Siever's explanations: "...rather absence of lip-pouting: otherwise the lip action seems to be quite pronounced in English as in other languages."⁶⁹

In a similar way, Viëtor reacts to Storm's observations considering Italian lighter and less muffled than English. Viëtor explains:

Ich glaube jedoch, da an dem dumpfen Klang des Englischen auch die mit der sonstigen Artikulationsweise übereinstimmende Gewohnheit beteiligt ist, in (verhältnismäßig) tiefer Tonlage zu sprechen.⁷⁰

Viëtor also contradicts Beyer, who in his Französische Phonetik characterizes the south and middle German dialects as especially contrary to French, and explains

⁶⁹In contrast to Sievers who observes "geringe Teilnahme der Lippen Lippen an der Sprachbildung" - quoted by Dieth, op. cit., p. 136.

⁷⁰Wilhelm Viëtor, Elemente, p. 264.

in his Elemente:

Dass sich zur Erlernung der französischen Aussprache Norddeutsche im allgemeinen besser eignen als Süddeutsche, bedarf grosser Einschränkung. Manche norddeutschen Mundarten haben beinahe englische Artikulationsbasis.⁷¹

(4) Generally, the basis of articulation has stimulated very little interest among phoneticians. This has often been regretted, especially by Honikman and Heffner, but has never led to further research: One of the reasons for this may be the fact that the basis of articulation of a given language cannot be measured absolutely and that the description of the basis of articulation has to rely on comparisons, as Sievers has already pointed out very early. Whether the determination of the basis of articulation can serve as an aid in the search for a system of auditory phonetic qualities, as Heike⁷² suggests, remains to be seen.

The research of the basis of articulation has aroused the greatest interest in the last third of the nineteenth century. Since then interest has decreased. Most phoneticians of this century neither use the term nor describe the phenomenon.

(5) In many articles and chapters about the basis of articulation only trivial or vaguely essential things have been said. Very often many contradicting observations have been made. Sweet and Boyer, for instance, think north German pronunciation to be closer to French, while Siever and Viëtor see a closer relationship to English.

⁷¹Ibid., p. 264-256.

⁷²Georg Heike, "Zur Frage eines lautlichen Bezugssystems für phonetische Notationen" Zeitschrift für Mundartforschung, v. 31 (1964), p. 53.

(6) The application and the use of the basis of articulation of a given language in language teaching seems to be rather limited. In general, a language student learns the basis of articulation by natural imitation or mimicry, very similar to the way he learns his mother tongue. A foreign language teacher who gives his students a lecture (except for visual demonstration of lip movements) on the basis of articulation of the language to be learned will have little success.